

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/DK2004/000454

International filing date (day/month/year)  
25.06.2004

Priority date (day/month/year)  
26.06.2003

International Patent Classification (IPC) or both national classification and IPC  
C07K1/04, C07B61/00

Applicant  
CARLSBERG AS

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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10/561803

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/DK2004/000454

**IAP20** 22 DEC 2005

**Box No. I Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/DK2004/000454

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	
	No: Claims	1-143
Inventive step (IS)	Yes: Claims	
	No: Claims	1-143
Industrial applicability (IA)	Yes: Claims	1-143
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/DK2004/000454

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

- D1: J. Comb. Chem. 3, 2001, pages 45-63;  
D2: J. Comb. Chem. 3, 2001, pages 34-44;  
D3: Chemistry - A European Journal 5(4), 1999, pages 1218-1225;  
D4: Tetrahedron Lett. 44(19), 5 May 2003, pages 3835-3838.

1) D1 (see i. a. Figure 2) discloses the formation of peptide libraries ending with a polycyclic derivative prepared with the use of the Pictet-Spengler reaction, whose intermediate is known to be an N-acylimminium ion. To this respect see also Scheme 8 of the same document.

D2 discloses (see Scheme 5) the preparation of peptide isosters ending in a polycyclic derivative by the use of the Pictet-Spengler reaction. These isosters can immediately be used as building blocks in the preparation of libraries, and this is evident already in the title.

D3 discloses the preparation of polycyclic compounds from N-terminal peptide aldehydes immobilized on a support. Though the use of those in the preparation of libraries is not alluded to in the title, it is sufficient to read the first lines of the introduction and the possibility of their use as building blocks in the preparation of libraries becomes evident to the skilled artisan.

D4 discloses the use of the Pictet-Spengler reaction in the preparation of peptide libraries ending with polycyclic compounds.

On the basis of the above it is concluded that claims 1-143 of the present application are deemed to lack novelty under Art. 33(2) PCT.

2) On the basis of D1-D2, the objective problem underlying the present application consists in the provision of alternative libraries and method to prepare them. There is no appreciable difference between the present application and the documents cited above. No unsuggested technical feature is evidenced, nor is any surprising effect brought to the attention of the skilled person. Therefore an inventive step under Art. 33(3) PCT cannot be recognized for claims 1-143 of the present application.

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